

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of February 19, 2008 is respectfully requested.

By this Amendment, claims 1, 2 and 4-13 have been amended. Thus, claims 1-13 are currently pending in the application. No new matter has been added by these amendments.

Revisions have been made to the specification and abstract. No new matter has been added by the revisions. Entry of the amendments to the specification and abstract is thus respectfully requested.

On pages 2-5 of the Office Action, the Examiner rejected claims 1, 2, 6-8 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Umotoy et al. (US 2001/0054381) in view of Nakamura et al. (US 4,346,285). On pages 5-7 of the Office Action, the Examiner rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Umotoy in view of Nakamura, and further in view of Steger et al. (US 5,788,799). On pages 7-8 of the Office Action, the Examiner rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Umotoy in view of Nakamura, and further in view of Iwabuchi (US 5,755,255). On pages 8-9 of the Office Action, the Examiner rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Umotoy in view of Nakamura, and further in view of Ohmi et al. (US 2003/0007917). For the reasons discussed below, it is respectfully submitted that the amended claims are clearly patentable over the prior art of record.

Amended independent claim 1 recites a semiconductor manufacturing device which includes a processing chamber, a supply passage for supplying a processing gas to an inside of the processing chamber, a transferring passage through which a wafer is to be put into and taken out of the processing chamber, and an exhaust passage through which the processing gas inside the processing chamber is to be exhausted. The device of claim 1 also includes a sheet-like heating unit arranged to heat an inner wall face of at least one of the supply passage, the transferring passage, the processing chamber, and the exhaust passage, with the heating unit including a thin plate-shaped resistive heating element sandwiched and covered by a pair of metal plates. Claim 1 also recites that the heating unit is arranged so as to detachably cover the inner wall face from an inner side of the at least one of the supply passage, the transferring

passage, the processing chamber and the exhaust passage, and that a portion of the metal plates extend to an outside of the semiconductor manufacturing device. Further, claim 1 recites that *a space between the metal plates in a region of the metal plates which is to be exposed to the processing gas is sealed with a spacer at edges of the metal plates in the region to be exposed to the processing gas, and that edges of the portion of the metal plates which extends to the outside are open to the outside.*

Amended independent claim 6 recites a heating unit for heating, in a semiconductor manufacturing device, an inner wall face of at least one of a processing chamber, a transferring passage through which a wafer is to be put into and taken out of the processing chamber, and an exhaust passage through which a processing gas inside the processing chamber is to be exhausted. Claim 6 also recites that the heating unit includes a thin plate-shaped resistive heating element and a pair of metal plates that are formed to sandwich and cover the resistive heating element, with the metal plates being arranged so as to detachably cover the inner wall face from an inner side of the at least one of the processing chamber, the transferring passage and the exhaust passage, and so as to define the at least one of the processing chamber, the transferring passage and the exhaust passage. Claim 6 also recites that a portion of the metal plates are arranged to extend to an outside of the semiconductor manufacturing device, *wherein a space between the metal plates in a region of the metal plates which is to be exposed to the processing gas is sealed with a spacer at edges of the metal plates in the region to be exposed to the processing gas, and wherein edges of the portion of the metal plates which is to extend to the outside are open to the outside.*

Umotoy discloses a chemical vapor deposition chamber which, as shown in Fig. 2a, includes a chamber body 250 having an inside heated liner 200. The heated liner 200 includes an embedded resistive heater 215 within the liner 200. However, as acknowledged by the Examiner on page 5 of the Office Action, Umotoy does not disclose *a heating unit which includes a thin plate-shaped resistive heating element and a pair of metal plates that are formed to sandwich and cover the resistive heating element*, as required by independent claims 1 and 6.

Nakamura discloses a heat generating unit 104 which, as shown in Fig. 5, includes a rectangular plate 104a made of a material having a positive temperature coefficient characteristic,

and first and second electrodes 104b and 104c deposited on opposite flat surfaces of the plate 104a. Therefore, on page 5 of the Office Action, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to replace the embedded heater 215 of Umotoy with the heat generating unit 104 of Nakamura in order to arrive at the present invention.

However, none of the Umotoy and Nakamura references discloses a heating unit in which *a space between the metal plates in a region of the metal plates which is to be exposed to the processing gas is sealed with a spacer at edges of the metal plates in the region to be exposed to the processing gas*, as required by independent claims 1 and 6.

In particular, it is first noted that neither of the Umotoy and Nakamura references discloses a heating unit in which a space between the metal plates is sealed with a spacer at edges of the metal plates. In this regard, it is noted that Nakamura does not even disclose a space between the electrodes 104b and 104c, as all of the figures indicate that the ends of the electrodes 104b and 104c are flush with the ends of the plate 104a. Therefore, as Nakamura does not disclose a space between the electrodes 104b and 104c, Nakamura also does not disclose a space which is sealed with a spacer at edges of the metal plates.

Further, it is noted that the proposed combination of the Nakamura and Umotoy references would not result in a heating unit in which *a space between the metal plates in a region of the metal plates which is to be exposed to the processing gas is sealed with a spacer at edges of the metal plates in the region to be exposed to the processing gas*, as required by independent claims 1 and 6. Rather, the proposed combination is the device of Umotoy in which the heater 215 is replaced with the heat generating unit 104 of Nakamura. In such a combination, the heat generating unit 104 of Nakamura would be embedded within the liner 200, and therefore no region of the electrodes 104b and 104c of the heat generating unit 104 would be exposed to the processing gas. Thus, the proposed combination of Nakamura and Umotoy would not result in a heating unit in which a space between the metal plates in a region of the metal plates which is to be exposed to the processing gas is sealed with a spacer at edges of the metal plates in the region to be exposed to the processing gas, as required by independent claims 1 and 6.

Therefore, for the reasons presented above, it is believed apparent that the present invention as recited in independent claims 1 and 6 is not disclosed or suggested by the Umotoy

reference and the Nakamura reference taken either individually or in combination. Accordingly, a person having ordinary skill in the art would clearly not have modified the Umotoy reference in view of the Nakamura reference in such a manner as to result in or otherwise render obvious the present invention of independent claims 1 and 6.

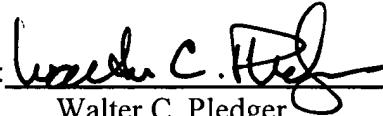
Therefore, it is respectfully submitted that independent claims 1 and 6, as well as claims 2-5 and 7-13 which depend therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice to that effect is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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May 19, 2008